

# A Summary of Recommendations for Plastic Surgeons during the Coronavirus Disease 2019 Outbreak

Anna R. Schoenbrunner, MD\*  
 Benjamin A. Sarac, BS†  
 Jeffrey E. Janis, MD

**Background:** The coronavirus disease 2019 outbreak presents unique challenges to the healthcare system. The lack of unified guidelines on what constitutes *elective surgery* left plastic surgeons without a clear framework to guide their practices. More urgently, the ambiguity in defining elective surgery leaves plastic surgeons without clear guidance as states begin to phase in these procedures.

**Methods:** Recommendations issued by state governing bodies as of April 28, 2020, were reviewed. National society and federal guidelines pertaining to postponement and resumption of elective surgeries affected by the coronavirus disease 2019 outbreak were also reviewed. Recommendations based on the above are collated for plastic surgeons.

**Results:** Thirty-six states and the District of Columbia provide recommendations regarding elective surgery. Cosmetic surgery is considered an elective surgery and should be postponed; this may be among the first elective surgeries to safely resume. Societal guidelines provide disease-specific recommendations for cancer-related surgery and breast reconstruction. Trauma, other cancer-related reconstruction, and hand surgeries are considered nonelective if postponement threatens life or limb or if a patient is highly symptomatic. Postponement and resumption of oncology, trauma, and hand surgery cases depend on disease stage and complexity of reconstruction. Pediatric craniofacial surgery presents unique challenges due to the time-sensitive nature of the interventions.

**Conclusions:** Guidance on elective surgery is vague for plastic surgeons. Government recommendations and societal guidelines provide a framework for plastic surgeons to assess the elective nature of a surgical intervention and safety of resumption; however, a nuanced assessment must be made on local disease transmission, supply availability, and hospital capacity. (*Plast Reconstr Surg Glob Open* 2020;8:e3039; doi: [10.1097/GOX.0000000000003039](https://doi.org/10.1097/GOX.0000000000003039); Published online 17 July 2020.)

## INTRODUCTION

The coronavirus disease 2019 (COVID-19) outbreak caused by the SARS-CoV-2 virus was declared a pandemic by the World Health Organization on March 11, 2020. Following this announcement, the American College of

Surgeons (ACS) issued guidance for triaging nonemergent cases based on an Elective Surgery Acuity Scale.<sup>1</sup> The ACS announcement was closely followed by the announcement by Centers for Medicare and Medicaid Services (CMS) recommending that “all elective, nonessential medical, surgical, and dental procedures be delayed” during the COVID-19 outbreak to minimize spread of the virus and preserve personal protective equipment (PPE).<sup>2</sup> Similar statements by The American Society of Plastic Surgeons (ASPS)<sup>3</sup> and individual states soon followed. Despite the plethora of guidelines, the criteria of what constitutes an elective procedure remain elusive. As states begin to control local outbreaks of the novel coronavirus, public health officials and societies have issued guidance on the resumption of elective procedures.<sup>3–5</sup>

The lack of clearly defined criteria regarding what constitutes an elective procedure has resulted in haphazard

From the \*Department of Plastic and Reconstructive Surgery, The Ohio State University Wexner Medical Center, Columbus, Ohio; and †The Ohio State University College of Medicine, Columbus, Ohio.

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implementation within practices and between providers. More urgently, this lack of clearly defined criteria portends a disordered resumption to normalcy. Plastic surgeons must be apprised of the most current state and society guidelines on the status of elective procedures and be amenable to adapt in the event of a second COVID-19 surge.<sup>6</sup>

In this report, we present recommendations issued by federal and state governing bodies concerning the cessation and resumption of elective surgeries. These recommendations, in conjunction with national society guidelines, are collated to provide guidance regarding elective surgery practices to plastic surgeons during the COVID-19 outbreak.

## METHODS

Recommendations issued by state governing bodies pertaining to elective surgery are reviewed as of April 28, 2020. We also reviewed national society and federal guidelines pertaining to elective surgeries affected by the COVID-19 outbreak. Due to the variability in enforceability and terminology used by different states, the term *recommendations* will be used in this article when discussing state communications about elective surgery practices during the COVID-19 outbreak.

## RESULTS

Thirty-six states and the District of Columbia provide recommendations or orders regarding the postponement of elective procedures.<sup>7–43</sup> Twelve states provide specific recommendations, using examples.<sup>8–10,18–20,24,26–28,30,35</sup> Readers are encouraged to reference their individual state's government resources and medical boards for further information on specific recommendations and enforceability. An overview of the CMS Tier-based system for designation of elective surgeries is outlined in [Table 1](#).

As many states have effectively “flattened the curve” by preventing an uncontrolled surge of COVID-19 cases, they have begun issuing guidance on the resumption of elective surgeries.<sup>44,45</sup> To date, 24 states have issued guidance on plans to resume elective surgeries.<sup>4</sup> Several national societies, including ACS and ASPs, have also issued guidance to their members.<sup>5,46</sup> Factors to consider before resuming elective surgeries include local COVID-19 surge and prevalence statistics, hospital capacity, PPE and disinfectant supply availability, testing capabilities, and COVID-19-specific informed consent. (See **document, Supplemental Digital Content 1**, which displays the COVID-19 consent form, <http://links.lww.com/PRSGO/B445>.) Plastic surgeons should familiarize themselves with the specifics of their respective government guidelines and society recommendations.

### Cosmetic Surgery

Plastic surgeons performed a total of 17.7 million cosmetic procedures in 2018; 1.8 million of these were surgeries.<sup>47</sup> Five states specifically address cosmetic surgery in their recommendations.<sup>10,19,24,30,35</sup> The ASPs guidance on elective surgery “recommends that all of our members

provide only urgent or emergent care” for office-, ambulatory surgery center-, and hospital-based procedures.<sup>3</sup> It should be noted that although the ACS guidelines suggest that Tier 1a to 2b procedures (low-to-intermediate acuity in healthy to unhealthy patients) may be performed in ambulatory surgery centers,<sup>1</sup> both CMS and ASPs guidelines recommend against performing all elective surgeries, if able.<sup>2,3</sup>

### Recommendation for Cessation and Resumption

Cosmetic surgeries were recommended to be suspended apart from complications requiring operative intervention. As states begin to allow resumption of elective surgeries, cosmetic surgeries may be safely resumed, as such cases are typically performed in ambulatory surgery centers without an overnight stay ([Table 2](#)).<sup>44</sup>

### Oncologic Reconstruction

Numerous guidelines, ranging from state recommendations to societal guidelines, have deemed oncology procedures to be nonelective. CMS guidelines divide cancers into Tier 2a (low-risk cancer) and Tier 3a (most cancers); the guidelines recommend postponing Tier 2a procedures and recommend against postponing Tier 3a procedures.<sup>2</sup> Surgeons, however, are required to define *low risk* versus *most cancers* on their own. State recommendations provide less-nuanced information regarding cancer care, with only 12 of the 50 states and the District of Columbia providing information regarding oncologic surgery; none provide guidance on breast reconstruction.<sup>8–10,19,20,26–28,30,35,36,42</sup>

The Society of Surgical Oncology provides resources for breast cancer treatment by type and stage during the COVID-19 outbreak, with recommendations to temporize patients with endocrine therapy or neoadjuvant chemotherapy when appropriate.<sup>48</sup> Further, a recent National Comprehensive Cancer Network article on cancer care during the COVID-19 pandemic suggests that patients with early-stage breast cancer can be appropriately treated and temporized with endocrine therapy until they can undergo surgery. The American Academy of Otolaryngology-Head and Neck Surgery provides guidelines on time-sensitive head and neck oncologic procedures and guidelines for safe resumption of elective cases.<sup>49,50</sup> The authors suggest that, in light of resource limitations, providers must focus their efforts on treatments that are “most likely to be successful, symptom-relieving, or lifesaving, and consider those patients likely to get the greatest benefit from treatments.”<sup>51</sup> Plastic surgeons must work collaboratively with medical and surgical oncologists to provide the most appropriate treatment options to their cancer patients in light of the COVID-19 outbreak.

ASPs issued a statement regarding breast reconstruction during the COVID-19 outbreak. The statement defines delayed and revision breast reconstruction as “elective and thus should be postponed until which time the system in your area can accommodate elective surgery as deemed safe for patients”.<sup>52</sup> The recommendations provide more nuanced guidance concerning immediate breast reconstruction, advising surgeons to weigh the risk of exposure, PPE use, staff availability, and

**Table 1. CMS Tier Designation for Elective Surgery<sup>2</sup>**

Tiers	Definition	Example	Action
Tier 1a	Low-acuity surgery. Healthy patient	Outpatient surgery/non-life-threatening illness	Postpone surgery
Tier 1b	Low-acuity surgery. Unhealthy patient		Postpone surgery
Tier 2a	Intermediate-acuity surgery. Healthy patient	Non life-threatening but potential for morbidity and mortality if surgery delayed. Surgery requires inpatient stay	Consider postponing surgery
Tier 2b	Intermediate-acuity surgery. Unhealthy patient		Postpone surgery if possible
Tier 3a	High-acuity surgery. Healthy patient	Inpatient	Do not postpone
Tier 3b	High-acuity surgery	Inpatient	Do not postpone

hospital capacity. Immediate autologous breast reconstruction is defined as elective (excluding chest wall reconstruction) and should be delayed. The guidelines also suggest an individualized approach to oncoplastic reconstruction and contralateral balancing procedures. The guidelines also suggest that plastic surgeons evaluate implant-based breast reconstruction on a case-by-case basis. Surgeons should also evaluate patient comorbidities and risks of additional anesthetic exposure from staged oncologic reconstruction, such as is required for delayed breast reconstruction. The ASPS statement on breast reconstruction suggests that “in general, plastic

surgeons should err on the side of caution and delay reconstruction” during the COVID-19 outbreak.<sup>52</sup> As states begin to phase in elective surgeries, these guidelines will undoubtedly change.

#### Recommendation for Cessation and Resumption

Oncologic reconstruction amenable to outpatient care should be prioritized. Oncologic reconstruction requiring inpatient stay should be performed with careful consideration to the risk of SARS-CoV-2 infection, given the immunocompromised state of oncology patients, inpatient capacity, and PPE availability (Table 2).

**Table 2. Summary of Recommendations Based on State, National, and Society Recommendations for Initial Delay and Resumption of Elective Surgeries**

	Initial Recommendations for Delay	Recommendations for Resumption
2a. Cosmetic	Suspend all operations except for complications requiring urgent intervention	Can resume in ambulatory surgery centers without an overnight stay
2b. Oncologic Reconstruction		
Breast Reconstruction	Postpone delayed and immediate autologous reconstruction Immediate implant-based reconstruction may be permissible	Can resume based on complexity of operation and local and hospital resources Must take into consideration the possibility of an immunocompromised state of oncologic patients
Head and Neck Reconstruction	May perform operations if likely to be successful, symptom-relieving, or life-saving.	
2c. Trauma Reconstruction	Postpone only those surgeries related to cosmetic concerns Do not postpone highly symptomatic patients	Prioritize ambulatory intervention
2d. Pediatric Craniofacial Surgery		
Cleft Lip Repair Cleft Palate Repair	Postpone Ideally postpone, while taking into consideration age of patient >12 months	Prioritize ambulatory intervention Those requiring inpatient hospitalization should prioritize time-sensitive procedures
Alveolar Bone Grafting	Ideally postpone, while taking into consideration timing of eruption of permanent canines	
Orthognathic Surgery MDO and TLA	Postpone Do not postpone when performed to avoid intubation or tracheostomy	
Craniosynostosis	Postpone for healthy outpatients Do not postpone if patient has elevated intracranial pressure	
2e. Hand Surgery		
Indolent Processes (carpal tunnel syndrome, trigger finger, etc.)	Postpone unless highly symptomatic	Prioritize ambulatory intervention for symptomatic patients
Traumatic Injuries	Do not postpone fixation/repair, infections, or amputations amenable to replantation	

### Trauma Reconstruction

Trauma reconstruction represents a wide range of procedures that vary in the acuity level. Only Florida provides specific recommendations on trauma-related surgery, designating such procedures as nonelective and “permissible”.<sup>10</sup> However, states such as Ohio provide more generic recommendations, stating that nonelective procedures include those that, if not performed, would be a “threat to the patient’s life” or would cause “permanent dysfunction of an extremity or organ system.”<sup>26</sup> For plastic surgeons, such guidelines pertain to reconstructive procedures that, if not performed, may compromise the life or limb of a patient. CMS guidelines recommend that trauma Tier 3b procedures that should not be postponed; however, this recommendation applies to high acuity, unhealthy patients based on CMS criteria.<sup>2</sup> Plastic surgeons must assess the acuity of trauma patient’s reconstructive needs to determine if their intervention is life- or limb-saving.

Facial trauma represents a range of clinical presentations and interventions. Based on CMS criteria, facial fractures in highly symptomatic patients are classified as Tier 3a and, therefore, procedures to correct the same should not be postponed. Operative facial fractures for cosmetic purposes are classified as Tier 1a and, therefore, the relevant treatment for the same should be postponed.<sup>2</sup> Facial nerve repair for acute facial nerve injury after trauma is classified as Tier 3b and should not be postponed. The only state to mention facial trauma is Minnesota.<sup>20</sup> Their recommendations specifically state that if there is “threat of permanent dysfunction of an extremity or organ system, including teeth and jaws,” then such an intervention is considered nonelective. The guidelines recently developed by AO CMF International Task Force for facial trauma that suggest performing fracture fixation to restore function and, when possible, performing closed reduction, using scalpel over cautery, and minimizing suctioning and power-assisted drilling.<sup>53</sup>

#### Recommendation for Cessation and Resumption

Plastic surgeons should work closely with their trauma, orthopedic, and neurosurgery colleagues to determine the acuity of the injury and the need for timely reconstruction. Facial fractures requiring operative intervention for highly symptomatic patients should proceed. Priority should be given to ambulatory interventions after assessment of each hospital’s inpatient capabilities and PPE supply (Table 2).

### Pediatric Craniofacial Surgery

The pediatric population is largely unaffected by the SARS-CoV-2 virus, with <1% of children younger than 10 years old affected and <2% of children younger than 19 years old affected.<sup>54-56</sup> Pediatric craniofacial surgery is unique due to the time-sensitive nature of many pediatric procedures. This nuance is neither captured by national or state guidelines, nor by craniofacial society guidelines.<sup>57</sup> The only state to mention the importance of age when considering the elective nature of an intervention is Arizona, which recommends that surgeons “consider the health and age of the patient.”<sup>8</sup> Of note, craniofacial

surgeons face a high risk of COVID-19 exposure, as procedures involving the oral cavity are aerosolizing procedures and increase transmission risk of the virus.<sup>53,58,59</sup>

Cleft lip repair is a low-acuity procedure typically performed in healthy patients, making this a Tier 1a procedure based on CMS guidelines<sup>2</sup>; cleft lip repair can be delayed without functional consequences, and therefore should be postponed. Cleft palate repair is likewise a low-acuity procedure and is typically performed on healthy patients, making this a Tier 1a procedure. However, significant evidence exists indicating that cleft palate repair performed after the age of 12 months is associated with worse speech outcomes; for this reason, cleft palate repair is typically performed before the age of 12 months.<sup>60,61</sup> Similarly, alveolar bone grafting is classified as a Tier 1a procedure; however, this procedure must be timed with eruption of the permanent canines. Craniofacial surgeons should take this timing into account when considering alveolar bone grafting. Orthognathic surgery is generally a low-acuity procedure performed in healthy patients timed based on orthodontic intervention. Though orthognathic surgery is timed with orthodontic treatment, delaying orthognathic surgery will not interfere with the orthodontic treatment plan.

Mandibular distraction osteogenesis and tongue lip adhesion are typically performed for patients with airway obstruction due to retrognathia and glossoptosis seen in Pierre Robin sequence. When mandibular distraction osteogenesis or tongue lip adhesion is performed to avoid intubation or tracheostomy, the procedure is classified as Tier 3a and should not be postponed. When the procedure is performed in healthy patients in an outpatient setting, the procedure is classified as Tier 1a; even in such a circumstance, the age of the patient must be taken into account to determine the optimal timing of the procedure.

Craniosynostosis presents a unique challenge for craniofacial surgeons, as patient age and severity of symptoms play a key role in the timing of the procedure. For patients who present early, minimally invasive interventions may be preferred. Minimally invasive options are typically favored before the age of 4 months due to higher risk of complications after the age of 4 months.<sup>62,63</sup> Patients who are not candidates for minimally invasive options, open cranial vault remodeling is favored before the age of 12 months as re-ossification potential decreases after the age of 1 year and complication rates increase.<sup>64,65</sup> Patients presenting with symptoms of elevated intracranial pressure are classified as Tier 3a; intervention should not be postponed.

#### Recommendation for Cessation and Resumption

Craniofacial surgeons should assess the time-sensitive nature of the planned procedures to determine if a procedure can be postponed. As states begin to resume elective surgeries, craniofacial surgeons should prioritize ambulatory procedures. Those cases requiring inpatient hospitalization should prioritize time-sensitive procedures, with attention paid to inpatient capabilities and PPE supply (Table 2).



### Hand Surgery

Hand surgery encompasses a wide range of procedures, ranging from trauma to infections to arthroplasty. CMS guidelines categorize carpal tunnel release and similar procedures as Tier 1a, recommending such interventions be postponed. They list nonurgent orthopedic cases as Tier 2a, recommending consideration of postponement. Any highly symptomatic patients or limb-threatening disease processes or injuries would be classified as Tiers 3a and 3b, respectively; such cases should not be postponed. No state recommendations specifically address hand surgery, though several, such as Ohio, consider interventions to prevent “permanent dysfunction of an extremity” non-elective.<sup>26</sup> To date, no national society guidelines provide guidance on elective hand surgery.

### Recommendation for Cessation and Resumption

Based on existing national and state guidelines, hand surgery interventions for traumatic injuries requiring operative fixation or repair, infections, and amputations amenable to replantation would be considered nonelective. As states allow elective surgeries to resume, hand surgeons should prioritize cases for symptomatic patients that are amenable to ambulatory intervention. Hand surgeons should assess inpatient capabilities and PPE supply before proceeding with complex interventions requiring inpatient stay (Table 2).

### General Recommendations for the Safe Resumption of Elective Cases

Safe resumption of elective cases requires a thoughtful plan for a phased reopening. The Ohio Department of Public Health provides such an example with a 2-phased approach. Phase 1 allows for resumption of ambulatory, outpatient procedures, while phase 2 allows for all elective procedures to resume.<sup>44</sup> Standards for progressing between the phases is based on a statewide assessment of testing availability, PPE inventory, equipment, and supplies, as well as monitoring for unexpected disease resurgence. Our institution’s guidelines provide additional guidance for COVID-19 testing—requiring all inpatients and outpatients scheduled for surgery to undergo COVID-19 polymerase chain reaction testing either at the time of admission or within 5 days of their surgery date, with self-quarantine in between to minimize interval exposure. In line with ASPS recommendations, our institution also requires a COVID-specific informed consent detailing the risks of contracting SARS-CoV-2 and the potential risks for postoperative recovery.<sup>46</sup> Though the Centers for Disease Control and Prevention currently does not recommend testing of asymptomatic healthcare workers, the National Health Service and British Association of Plastic Reconstructive and Aesthetic Surgeons recommend routine testing of asymptomatic healthcare workers.<sup>66,67</sup>

## DISCUSSION

Plastic surgery represents a broad field of practice, encompassing a range of acuities and patient ages. As such, recommendations on elective plastic surgery must

be nuanced to encompass the diverse nature of the specialty. National and state guidelines provide a framework for plastic surgeons to reorganize their practices based on exposure risk and resource limitations. The enforceability of current CMS and state-level guidelines remains unclear. Readers are directed to their respective state’s resources for further information.

National society guidelines, particularly ASPS, ACS, and Society of Surgical Oncology, provide more nuanced guidance for certain procedures.<sup>1,48,52</sup> Plastic surgeons must critically examine their practices to determine the level of acuity of their patients and interventions. When questions arise regarding the appropriateness of a surgical intervention, surgeons may turn to institutional bioethicists for guidance or refer to published ethical considerations during the COVID-19 outbreak.<sup>68</sup> Those procedures that qualify as elective should be postponed in an effort to minimize exposure risk and aid in the collective effort to preserve limited PPE supply (Fig 1).

As states begin to resume elective surgeries, plastic surgeons must remain apprised of guidelines issued by states and societies, as local COVID-19 outbreaks will impact transmission risk, hospital capacity, and PPE supply. Local surges also may reimpose restrictions on elective procedures.<sup>5,46</sup> Of special note, ASPS recommends



**Fig. 1.** A visual framework for plastic surgeons to assess the elective nature of an intervention. Plastic surgeons should assess national, state, and societal guidelines, where they exist, for specific guidance on definitions of elective procedures. They should then assess resource limitations of their healthcare system to determine the staffing and PPE availability that may be needed for their intervention. Plastic surgeons should use their clinical judgment to determine the acuity of their patient’s condition and timeliness of an intervention. Exposure risk, health system capacity, and acuity of the patient’s condition must be considered. These factors must be weighed against the severity of the COVID-19 outbreak within a community to determine the appropriateness of a surgical intervention. Such decisions are ultimately guided by ethical considerations.

that members obtain additional informed consent due to risk of SARS-CoV-2 infection by proceeding with elective surgery (see **Appendix, Supplemental Digital Content 2**, which shows the statement of informed consent, <http://links.lww.com/PRSGO/B456>).<sup>46</sup> Plastic surgeons must partner with local and state public health departments, hospital and clinic administrations, and patients to ensure a safe resumption of elective surgeries.

### SUMMARY

Plastic surgeons must familiarize themselves with national, state, and societal guidelines pertaining to their field of practice to assess the elective nature of an intervention. Elective interventions must be postponed in an effort to preserve limited resources and minimize exposure risk until states allow the resumption of elective surgeries. The COVID-19 outbreak presents unique and novel challenges for our healthcare system—as plastic surgeons, we must weigh our individual responsibilities to our patients against our collective responsibility to preserve limited resources and increase healthcare capacity during the acute phase of the COVID-19 outbreak.

**Jeffrey E. Janis, MD**

915 Olentangy River Road, Suite 2140  
Columbus, OH 43212

E-mail: [Jeffrey.janis@osumc.edu](mailto:Jeffrey.janis@osumc.edu)

### REFERENCES

1. American College of Surgeons. *COVID-19: Guidance for Triage of Non-Emergent Surgical Procedures*. Chicago, IL: American College of Surgeons; 2020.
2. Centers for Medicare & Medicaid Services. *CMS Adult Elective Surgery and Procedures Recommendations: Limit all Non-essential Planned Surgeries and Procedures, Including Dental, Until Further Notice*. Baltimore, Md.: Centers for Medicare & Medicaid Services; 2020.
3. ASPS. *ASPS Guidance Regarding Elective and Non-essential Patient Care*. Arlington Heights, Ill.: American Society of Plastic Surgery; 2020.
4. Vaidya A. 24 states resuming elective surgeries. 2020. Available at [https://www.beckershospitalreview.com/public-health/11-states-resuming-elective-surgeries.html?origin=BHRE&utm\\_source=BHRE&utm\\_medium=email&utm\\_source=BHRE&utm\\_medium=email&oly\\_enc\\_id=5245H7866312C9J](https://www.beckershospitalreview.com/public-health/11-states-resuming-elective-surgeries.html?origin=BHRE&utm_source=BHRE&utm_medium=email&utm_source=BHRE&utm_medium=email&oly_enc_id=5245H7866312C9J). Accessed April 28, 2020.
5. American College of Surgeons. *Local Resumption of Elective Surgery Guidance*. Chicago, Ill.: American College of Surgeons; 2020.
6. Ozturk CN, Kuruoglu D, Ozturk C, et al. Plastic surgery and the COVID-19 pandemic: a review of clinical guidelines. *Ann Plast Surg* 2020. [E-pub ahead of print].
7. Alabama. *Order of the State Health Officer Suspending Certain Public Gatherings Due to Risk of Infection by COVID-19*. 2020.
8. Arizona. *Delaying Elective Surgeries to Conserve Personal Protective Equipment to Test and Treat Patients with COVID-19*. State of Arizona; 2020.
9. Colorado. *Ordering the Temporary Cessation of All Elective and Non-essential Surgeries and Procedures and Preserving Personal Protective Equipment and Ventilators in Colorado Due to the Presence of COVID-19*. 2020.
10. Florida. *Emergency Management—COVID-19-Non-essential Elective Medical Procedures*. 2020.
11. Georgia. *Gov. Kemp Issues New Executive Orders, Provides COVID-19 Update*. 2020.
12. Illinois. *COVID-19—Elective Surgical Procedure Guide*. 2020.
13. Indiana. *Gov. Holcomb Announces More Steps to Slow the Spread of COVID-19*. 2020.
14. Kentucky. *Cabinet for Health and Family Services Office of Legal Services*. 2020.
15. Louisiana. *Healthcare Facility Notice #2020-COVID19-ALL-06*. 2020.
16. Maine. *Governor Announces Significant Recommendations & Signs Civil Emergency Proclamation to Respond to COVID-19 in Maine*. 2020.
17. Maryland. *Directive and Order Regarding Various Healthcare Matters*. 2020.
18. Massachusetts. *Nonessential, Elective Invasive Procedures in Hospitals and Ambulatory Surgical Centers during the COVID-19 Outbreak*. 2020.
19. Michigan. *Temporary Restrictions on Non-essential Medical and Dental Procedures*. 2020.
20. Minnesota. *Directing Delay of Inpatient and Outpatient Elective Surgery and Procedural Cases during COVID-19 Peacetime Emergency*. 2020.
21. Mississippi. *COVID-19: Elective Surgical Procedures Must Be Rescheduled*. 2020.
22. Nebraska. *Coronavirus COVID-19 Information*. 2020.
23. New York. *Suspension and Modification of Laws Relating to the Disaster Emergency*. 2020.
24. New Jersey. *Executive Order No. 109*. 2020.
25. North Carolina. *State of North Carolina Department of Health and Human Services*. 2020.
26. Ohio. *Re: Director's Order for the Management of Non-essential Surgeries and Procedures throughout Ohio*. 2020.
27. Oregon. *Conserving Personal Protective Equipment and Hospital Beds, Protecting Health Care Workers, Postponing Non-urgent Health Care Procedures, and Restricting Visitation in Response to Coronavirus (COVID-19) Outbreaks*. 2020.
28. Pennsylvania. *Guidance on Ambulatory Surgical Facilities' Responses to COVID-19*. 2020.
29. South Dakota. *Executive Order 2020–08*. 2020.
30. Tennessee. *An Order to Reduce the Spread of COVID-19 by Limiting Non-emergency Healthcare Procedures*. 2020.
31. Texas. *Executive Order GA 09*. 2020.
32. Utah. *State Public Health Order*. 2020.
33. Vermont. *Suspension of all Non-essential Adult Elective Surgery and Medical and Surgical Procedures*. 2020.
34. Virginia. *Coronavirus Disease 2019 (COVID-19): Frequently Asked Questions*. 2020.
35. Washington. *Restrictions on Non Urgent Medical Procedures*. 2020.
36. Arkansas. *ADH Directive on Elective Surgeries*. 2020.
37. Alaska. *COVID-19 Health Mandate 005, Revised on April 7, 2020 Attachment C Non-urgent or Elective Procedures and Surgeries*. 2020.
38. Hawaii. *Executive Order No. 20-05*. 2020.
39. Oklahoma. *Executive Department Executive Memorandum 2020–02*. 2020.
40. Texas. *Executive Order GA 15 Relative to Hospital Capacity during the COVID-19 Disaster*. 2020.
41. Iowa. *Proclamation of Disaster Emergency*. 2020.
42. New Mexico. *Public Health Emergency Order Imposing Temporary Restrictions on Non-essential Health Care Services, Procedures, or Surgeries; Providing Guidance on Those Restrictions; and Requiring a Report from Certain Healthcare Providers*. 2020.
43. West Virginia. *Executive Order No. 16-20*. 2020.
44. Ohio. *Responsible Return to Surgeries and Procedures*. 2020.
45. Centers for Medicare & Medicaid Services (CMS). *Opening up America Again: Centers for Medicare & Medicaid Services (CMS) Recommendations Re-opening Facilities to Provide Non-emergent Non-COVID-19 Healthcare: Phase I*. 2020.

46. ASPS. *Considerations for the Resumption of Elective Surgery and Visits* ASPS Statement. 2020.
47. ASPS. *ASPS National Clearinghouse of Plastic Surgery Procedural Statistics*. 2019.
48. SSO. *Resource for Management Options of Breast Cancer During COVID-19*.
49. Setzen G, Anne S, Brown EG, et al. *Guidance for Return to Practice for Otolaryngology-Head and Neck Surgery: Part One*. Alexandria, Va.: American Academy of Otolaryngology—Head and Neck Surgery. 2020.
50. Setzen G, Anne S, Brown EG, et al. *Guidance for Return to Practice for Otolaryngology-Head and Neck Surgery: Part Two*. Alexandria, Va.: American Academy of Otolaryngology—Head and Neck Surgery. 2020.
51. Ueda M, Martins R, Hendrie PC, et al. Managing cancer care during the COVID-19 pandemic: agility and collaboration toward a common goal. *J Natl Compr Canc Netw* 2020;1–4.
52. American Society of Plastic Surgeons. *ASPS Statement on Breast Reconstruction in the face of COVID-19 Pandemic*. Available at <https://www.plasticsurgery.org/documents/medical-professionals/COVID19-Breast-Reconstruction-Statement.pdf>. Accessed July 1, 2020.
53. Grant M, Schramm A, Strong B, et al. AO CMF international task force recommendations on best practices for maxillofacial procedures during COVID-19 pandemic. In: AO CMF International Task Force. Davo, Switzerland: AO Foundation; 2020.
54. Lee PI, Hu YL, Chen PY, et al. Are children less susceptible to COVID-19? *J Microbiol Immunol Infect*. 2020;53:371–372.
55. Huang C, Wang Y, Li X, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet*. 2020;395:497–506.
56. Zucco L, Levy N, Ketchandji D, et al. Perioperative considerations for the 2019 Novel Coronavirus (COVID-19). Available at <https://www.apsf.org/news-updates/perioperative-considerations-for-the-2019-novel-coronavirus-covid-19/>. Accessed March 27, 2020.
57. Schoenbrunner A, Sarac B, Gosman A, et al. Considerations for pediatric craniofacial surgeons during the COVID-19 outbreak. *J Craniofac Surg*. 2020. [E-pub ahead of print].
58. Meng L, Hua F, Bian Z. Coronavirus disease 2019 (COVID-19): emerging and future challenges for dental and oral medicine. *J Dent Res* 2020;22034520914246.
59. *Rational Use of Personal Protective Equipment for Coronavirus Disease 2019 (COVID-19)*. 2020. World Health Organization. Available at [https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-\(covid-19\)-and-considerations-during-severe-shortages](https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-considerations-during-severe-shortages). Accessed July 1, 2020.
60. Katzel EB, Basile P, Koltz PF, et al. Current surgical practices in cleft care: cleft palate repair techniques and postoperative care. *Plast Reconstr Surg*. 2009;124:899–906.
61. Pradel W, Senf D, Mai R, et al. One-stage palate repair improves speech outcome and early maxillary growth in patients with cleft lip and palate. *J Physiol Pharmacol*. 2009;60(Suppl 8):37–41.
62. Riordan CP, Zurkowski D, Meier PM, et al. Minimally invasive endoscopic surgery for infantile craniosynostosis: a longitudinal cohort study. *J Pediatr*. 2020;216:142–149.e2.
63. Arko L IV, Swanson JW, Fierst TM, et al. Spring-mediated sagittal craniosynostosis treatment at the Children’s Hospital of Philadelphia: technical notes and literature review. *Neurosurg Focus*. 2015;38:E7.
64. Noordzij N, Brouwer R, van der Horst C. Incomplete reossification after craniosynostosis surgery. *J Craniofac Surg*. 2016;27:e105–e108.
65. Bruce WJ, Chang V, Joyce CJ, et al. Age at time of craniosynostosis repair predicts increased complication rate. *Cleft Palate Craniofac J*. 2018;55:649–654.
66. CDC. Evaluating and testing persons for Coronavirus Disease 2019 (COVID-19). Available at <https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html>. Accessed May 31, 2020.
67. NHS. *Operating Framework for Urgent and Planned Services in Hospital Settings During COVID-19*. 2020.
68. Emanuel EJ, Persad G, Upshur R, et al. Fair allocation of scarce medical resources in the time of covid-19. *N Engl J Med*. 2020;382:2049–2055.